RF Explorer® SERIES

Spectrum Analyzer PLUS and PLUS SLIM

Firmware Version 3.36

Cumulative Release Notes

RF Explorer is an affordable Handheld Spectrum Analyzer with a growing list of features.

This little powerful unit is the tool you need

to reduce the implementation time and cost

of your next wireless project.

This Release Notes document is complementary to the RF Explorer User Manual, [available online](#).

Please consider the environment before printing this document.

Firmware Upgrade Instructions

This firmware is compatible with RF Explorer PLUS and PLUS SLIM models, including RF Explorer WSUB1G PLUS and ISM COMBO PLUS.

To upload this firmware, you must use the Uploader tool included in this software package. Firmware upgrade is a safe, simple process that can be repeated many times if something goes wrong.

You can update firmware using Windows, Linux or MacOS X operating systems.

For more details on how to upload firmware into your device, please visit online guide:

> www.rf-explorer.com/upgrade

License and registration

This firmware upgrade tool requires registration and internet connection.

You must provide a valid registration email to receive an activation code for your computer. If you do not receive a valid email, check your spam folder.

Privacy policy is available online at www.rf-explorer.com/privacy

Backup your presets

If your device has stored Presets please use the Preset Tool to save them to a computer, and restore them after the upgrade in case any preset is lost.

For more details visit: http://www.rf-explorer.com/preset

Version 3.36

Release date: CEST April 07, 2022

New Features:

- Added support for 7.5GHz frequency to 6G COMBO PLUS model, more details at www.rf-explorer.com/devlic
- Added support for 6.1GHz frequency to 4G COMBO PLUS model, more details at www.rf-explorer.com/devlic
- Improved Tracking SNA speed
- Support for RF Explorer 6G WB PLUS model.
- Added response to USB commands while the RF Explorer device is showing a menu screen.

Fixes:

- Resolved an accuracy problem where some units may distort the spectrum analyzer response with internal attenuator enabled.

Important: due to configuration data format, after upgrading you must not downgrade to an version earlier than v3.16.

Version 3.33

Release date: CEST Feb 11, 2022

Important: due to configuration data format, after upgrading you must not downgrade to an version earlier than v3.16.

Fixes:

- Resolved a S/N expansion problem issue where some expansion boards for 4G COMBO PLUS and 6G COMBO PLUS units may show incorrect S/N values.
- Implemented IC manufacturer fix to avoid temperature issues for frequencies lower than 240MHz in the internal mixer LO. Before this fix was implemented, some WSUB1G PLUS units may not properly measure amplitude in frequencies range 50KHz - 240MHz when working at high temperatures. This issue was not present in most units, only rare cases.
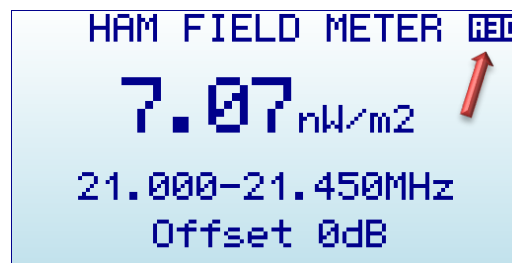
Version 3.29

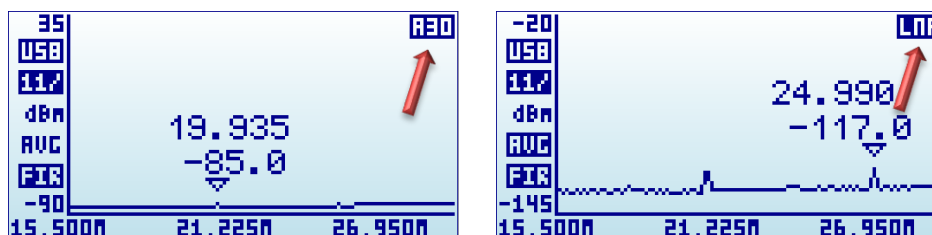Release date: CEST June 10, 2021

Important: due to configuration data format, after upgrading you must not downgrade to an version earlier than v3.16.

New Feature:

- The HAM Field Meter feature now includes internal Attenuator defined by default. This is a requested feature to avoid signal overload due to typical signal levels used by HAM transmitters. To enable/disable the internal attenuator while working in HAM Field Meter mode, use the [RETURN] ⤺ key. Caution: Always use the internal attenuator in presence of strong RF fields, overloading the instrument may damage the device and is not covered by warranty. You may also need external attenuator if the signal is very strong, check user manual for secure signal level measurement.

- The 30dB Attenuator **A30** icon and **LNA** low noise preamplifier icon are now included in main screen (Spectrum Analyzer and HAM Field Meter modes) to visually indicate when these options are enabled. No icon is displayed for the DIRECT default mode. For Expansion boards with support for 60dB Attenuator icon **A60** is also available.

- The Attenuator mode is restored on unit startup if it was enabled in Spectrum Analyzer mode when the unit was powered down. The LNA is however not restored at startup to avoid risk of damage in presence of strong fields.
- By popular demand, the HAM Field Meter mode is no longer active by default upon device startup and license is enabled. Instead, the device will start in the last used mode (Spectrum Analyzer or HAM Field Meter mode). Note HAM Field Meter can only be enabled with the left-side SMA RF connector active (module 50KHz-960MHz)
- A new Wideband optional license is available to extend the frequency range of certain models:
  - **RF Explorer 4G Combo PLUS**: the expansion board can work on range **15-5100MHz** with the Wideband license enabled (by default works in 240-4000MHz).

In addition, a single sweep may cover up to **3GHz span** (otherwise by default is 960MHz)

- o **RF Explorer 6G Combo PLUS**: the expansion board can work on range **15-6100MHz** with the Wideband license enabled. In addition, a single sweep may cover up to **3GHz span** (otherwise by default is 960MHz)
- o To order a Wideband license please visit www.rf-explorer.com/devlic

Fixes:

- The HAM Field Meter feature now correctly calculates V/m and W/m^2 when the internal attenuator or preamplifier are enabled. Prior to this fix, enabling the attenuator or the preamplifier did not correctly compensate internal gain.

Version 3.28

Release date: CEST May 4, 2021

Important: due to configuration data format, after upgrading you must not downgrade to an earlier version than v3.16.

This is a maintenance release. Minor API updates added to comply with RF Explorer Touch latest release.
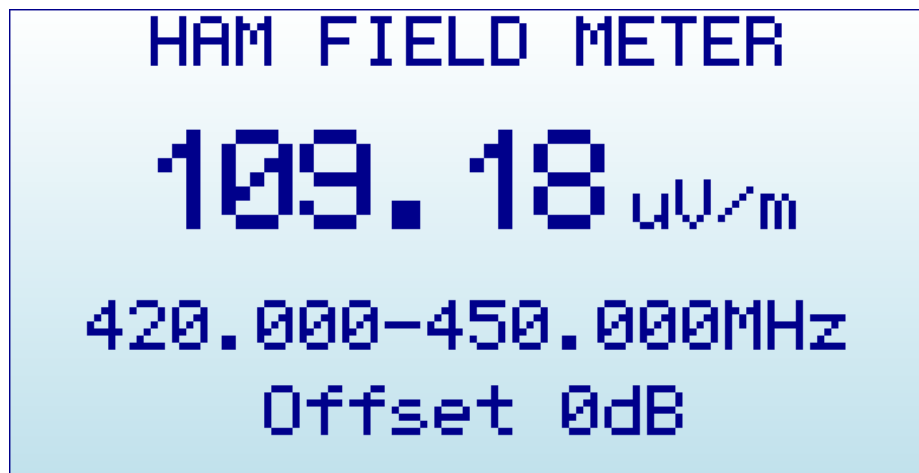
Version 3.25

Release date: CEST April 4, 2021

Important: due to configuration data format, after upgrading you must not downgrade to an earlier version than v3.16.

New Feature:

- RF Explorer PLUS models can now work as a Field Meter for HAM bands, see more details at www.rf-explorer.com/ham

Version 3.24

Release date: CEST March 4, 2021

Important: due to configuration data format, after upgrading you must not downgrade to an earlier version than v3.16.

Fixes:

- A specific sporadic case where device Serial Number may not be correctly recognized has been fixed. Before this fix, in some conditions the device may start and get stuck in "Invalid S/N" screen message.
- As part of the fix, the unit will automatically recognize the condition and will use an internal reconfiguration process to fix the S/N check, and therefore the unit may automatically restart once if this condition is found. There is no manual action required from the user.

Version 3.20

Release date: CEST Feb 01, 2021

Important: due to configuration data format, after upgrading you must not downgrade to an earlier version than v3.16.

Bug fixing:

- Several fixes when High Resolution mode is selected and RF module is switched
- Fixed some problems in 5GHz WiFi mode channel selection
- An updated battery calibration code to increase accuracy on low battery conditions

Version 3.18

Release date: CEST Oct 30, 2020

Important: due to configuration data format, after upgrading you must not downgrade to an earlier version than v3.16.

New Feature:

- RF Explorer PLUS models can now record and replay sweeps. With this feature is easy to capture events and signals to be reviewed later.
- The sweeps captured can be also downloaded to a computer as data files for later replay.
- The record/play feature is an advanced functionality enabled by license. For more details visit page www.rf-e.in/rec

Version 3.17

Release date: CEST Sept 4, 2020

Important: due to configuration data format, after upgrading to v3.17 you must not downgrade to an earlier version than minimum 3.16.

Bug fixing:

- Fixed issue using Tracking SNA with 6G PLUS and 4G PLUS COMBO models. Before this fix, some configurations may fail to correctly start Normalization step.
- To correctly perform Tracking SNA use this firmware 3.17 with RF Explorer for Windows version 2.2.2009 or later.

Version 3.16

Release date: CEST July 2, 2020

Important: due to configuration data format, after upgrading to v3.16 you must not downgrade to an earlier version as otherwise calibration data may be lost in your unit.

This firmware version is required in order to recognize RFEM4G PLUS and RFEM6G PLUS expansion boards.

Enhancements:

- Updated internal data storage, with additional compression features for additional capabilities.
- Added support in WiFi Analyzer mode for all 28 international 5GHz WIFI channels and 13 channels at 2.4GHz
- Added support for RFEM4G PLUS and RFEM6G PLUS boards
- Added support for 4G Combo PLUS and 6G Combo PLUS models
- Added support for selective 12dB gain LNA in RFEM2.4G PLUS board, including ISM Combo PLUS assembled models. The ISM Combo PLUS model now starts in **Direct** mode, to avoid potential damage when strong signals are being received. For additional sensitivity, select **Input:LNA 12dB** in the ATTENUATOR MENU.
  Note: in previous versions of the firmware, the 2.4GHz module was starting with LNA enabled, so any difference in noise floor with previous version is corrected by manually enabling the internal LNA in the new firmware version.
- Improved scan speed in high resolution mode.

Version 3.12

Release date: CEST Sept 20, 2019

Enhancements:

- Improved High Resolution mode for sweep scans of higher than 112pts, as supported in latest releases of RF Explorer for Windows and RF Explorer Touch. The analyzer is now able to scan up to 4096 points with higher efficiency and stability.

Fixes:

- Resolved problem when ISM Combo PLUS unit switches RF modules using PC software control. Prior to this fix, the device sometimes may not redraw LCD screen correctly or misrepresent data on screen.

Version 3.11

Release date: CEST May 20, 2019

<u>Fixes</u>:

- Automatic LCD contrast adjust. Before this fixes, some customers may get an incorrect LCD contrast after upgrading to v3.10 from earlier versions. The workaround was to manually update contrast in the CONFIG MENU, but version 3.11 adjust this automatically after upgrade; manual adjustment should not be required.

Version 3.10

Release date: CEST April 08, 2019

Enhancements:

- Compatible with RFVenue Vantage v2.0

- Improved High Resolution mode scan speed.

- Added flexible command mode support to improve response in High Resolution mode.

- Tracking SNA speed improved, in most scenarios the tracking is now 300% faster than in previous version. The faster speed is a great improvement to get a closer to real-time tracking SNA response.

- Improved battery level charge and calibration algorithm

- Added support for RFEM2.4G PLUS expansion board

- Added RF Generator support for RFEM2.4G standard and RFEM2.4G PLUS expansion boards

- Added Wifi Analyzer support for RFEM2.4G standard and RFEM2.4G PLUS expansion boards

- Internal USB communication buffer is now reset when using RETURN button in the Spectrum Analyzer screen. If the unit becomes unresponsive when connected to a computer, you can try using the RETURN button rather than disconnect/reconnect step.

Version 3.06

Release date: CEST May 18, 2018

<u>Enhancements:</u>

- Added full support for **RF Explorer Preset Manager**, check www.rf-explorer.com/preset for more details.

```
      PRESET MENU

   Identifier: 002
   Desc: Preset 2*
         Load
         Save
         Reset
   [0907.064 -0912.936]
```

- **Preset screen now includes Frequency range**: when an active preset with data stored is selected, the last line of the screen shows the Start/Stop frequency range of the preset, to help on determining the specific preset configuration before loading it. This line will be blank if an empty preset is selected.
- **Support for RFEMWSUB3G and RFEM24G expansion boards**: The RF Explorer Plus model can now work with standard expansion boards. Connectors are different but compatible, please make sure to follow instructions as documented in www.rf-explorer.com/expansion before assembling an expansion board.

Version 3.05

Release date: CET Mar 13, 2018

<u>Enhancements:</u>

- Added features to import/export Preset definitions from a connected computer. This feature is required by a RF Explorer for Windows and special multi-platform Preset tool being released in 2018.

<u>Fixes</u>:

- Fixed internal ADC battery calibration problem. Original firmware released from factory may include adjustment problems incorrectly reported the battery level to be 65% where it should be 100%.

Version 3.03

Release date: CET Oct 10, 2017

<u>Fixes</u>:

- Fixed numerical limits in ATTENUATOR MENU. Before this fix, some large OffsetDB values may produce unexpected results on menu values for Top and Bottom dBm.

Disclaimer

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For more info on RF Explorer, please visit www.rf-explorer.com

For instructions to upload this new firmware in your RF Explorer unit, please visit online documentation at www.rf-explorer.com/upgrade .

Some of these new features documented below may not be available in the user manual until a final release is published. For questions, please go to RF Explorer forum at www.rf-explorer.com/forum .

Some of these notes may refer to beta versions. They have been thoroughly tested, but they may not pass all formal review and regression test of a final version. You should not install a beta firmware if you are not comfortable with occasional bugs or risk of losing data.

Final release versions pass a full set of test cases and formal review process to minimize the risk of any issue.

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